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LENGTH-ADJUSTABLE SKI POLE
[Längenverstellbarer Skistock]

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Claims

1. A length-adjustable ski pole with an outer tube, an inner tube that can slide and rotate in said outer tube, and a clamping device, said clamping device comprising an expansion member--which lengthens the inner tube that is torsionally rigidly connected to said inner tube and tha thas an external thread and a conical expansion segment--as well as an expansion bushing with an internal thread, characterized in that the expansion member (8,9) comprises a shaft (5) which is guided inside the inner tube (3) so as to be adjustable in length and an axially acting compression spring (6) is disposed between the inner tube and the expansion member.

2. The ski pole as in Claim 1, characterized in that a guide member (4) is unmovably affixed to the end segment of the inner tube (3), said guide member having a longitudinal hole through which the shaft (5) passes.

3. The ski pole as in Claim 2, characterized in that a hexagonal screw head (5a) is disposed on the shaft (5) and that said hexagonal screw head, which is adjacent to the longitudinal hole, is received inside a mating hexagonal recess (4a) of the guide member.

The subject matter of the present invention relates to a length-adjustable ski pole with an outer tube, an inner tube that can slide and rotate in said outer tube, and a clamping device, said clamping device comprising an expansion member--which lengthens the inner tube, that is torsionally rigidly connected to said inner tube and that has an external thread and a conical expansion segment--as well as an expansion bushing with an internal thread.

Ski poles of this type are known, for example, from German Patent DE 24 07 464 or Swiss Patent CH 253 277. These designs have the disadvantage that the outside diameter of the expansion bushing and the inside diameter of the outer tube must be made to conform very accurately to each other so as to

ensure that the expansion bushing, even in the relaxed state, produces a sufficient frictional force relative to the outer tube so as to make it possible to screw in the expansion member.

Also known are spring-loaded ski poles, the inner tube of which can be pushed against spring tension a certain distance into the outer tube. However, these spring-loaded ski poles are not length-adjustable or their length can be adjusted only in steps and with considerable effort on the part of the user.

The present invention is based on a length-adjustable ski pole of the type described in greater detail in the introduction and is marked by the fact that the expansion member has a length-adjustable shaft which is guided in the inner tube and that an axially acting compression spring is disposed between the inner tube and the expansion member. To guide the shaft, it is proposed that a guide member be stationarily affixed to the end segment of the inner tube, which guide member has a longitudinal hole through which the shaft passes. The shaft preferably has a hexagonal head which is received inside a hexagonal recess of the guide member, said hexagonal recess being adjacent to the longitudinal hole.

Thus, the subject matter of the present invention combines the advantages of length-adjustable ski poles known from the prior art with a clamping device and the spring-loaded ski poles. The invention is therefore highly suitable for use on ski trips requiring high-quality ski poles since in such cases both functions are needed. When traversing steep slopes, two ski poles of different lengths are needed, and for transporting the ski poles horizontally on the backpack, it should be possible to shorten said poles to an extremely short length. In addition, the risk of falling on the ski pole is especially high on difficult high alpine tours. In case of a fall, the risk of accidents is considerably reduced because of the damping effect of the spring-loaded pole.

An important advantage of the invention is that using a small trick, it is possible to ensure the functioning of the clamping device even if the inside diameter of the outer tube has a relatively large tolerance, i.e., even if relatively large dimensional discrepancies are to be expected in the production

from one piece to the next. The trick is to slightly bend the shaft when the outer tube has an especially large diameter, thereby ensuring that the expansion member gets wedged with a certain elasticity into the outer tube. With the prior-art clamping devices, this is not possible because they have an expansion member that is very short.

Lastly, because of the integrated design of the clamping and spring assembly, the production of such a ski pole is considerably simplified, thereby also reducing the cost of production.

One practical example of the invention will be explained in greater detail based on the drawing. As can be seen,

Figure 1 shows a longitudinal section through the clamping and spring assembly of a ski pole and

Figure 2 shows a cross section along line II-II [of Figure 1] of only the expansion bushing and the threaded shaft.

At the lower end of an outer tube 1 that forms the upper portion of the ski pole, a decorative sleeve 2 is disposed. An inner tube 3 is telescopically movable in the outer tube 1. A guide member 4 is inserted from the top into the inner tube 3 and connected to it by means of nodular indentations. The central through opening of the guide member is made up of a round hole that receives the shaft 5 of a hexagonal screw and a hexagonal recess 4a that corresponds to the cross-sectional dimensions of the screw head 5a. The following parts are placed or screwed onto the vertical shaft in the following sequence: A compression spring 6, a disk 7 against which said compression spring rests, a lock nut 8, an expansion cone 9 with an internal thread, an expansion sleeve 10 with an internal thread, and a cap nut 11. As the cross section of the expansion sleeve 10 illustrates, the expansion sleeve is divided into four expansion segments by means of two longitudinal slots 10a at right angles to each other, which expansion segments are united at the top and rest at the bottom rest with conical surface segments against expansion cone 9.

When the two tubes of this ski pole are twisted in opposite directions with respect to each other, the expansion cone 9, which is attached to shaft 5 by means of lock nut 8, rotates relative to expansion sleeve 10 that adheres in a frictionally locking fashion in the outer tube 1. Depending on the direction of rotation, the expansion sleeve 10 is loosened, thereby making it possible to move the two tubes of the pole telescopically one inside the other, or the expansion sleeve is expanded, thereby affixing it unmovably into outer tube 1 and ensuring that the set length of the ski pole is maintained. At the same time, however, it is possible to push in the inner tube by compressing spring 6, so that a heavy fall onto the ski pole is considerably dampened. As the spring is pushed in, shaft 5 and head 5a of the hexagonal screw move in the guide member 4 but the hexagonal shape prevents rotation in the opposite direction.

Explanation of symbols

1	Outer tube
2	Decorative sleeve
3	Inner tube
4	Guide member
4a	Hexagonal recess
5	Shaft
5a	Hexagonal head
6	Compression spring
7	Disk
8	Lock nut
9	Expansion cone
10	Expansion bushing

10a Longitudinal slot

11 Cap nut

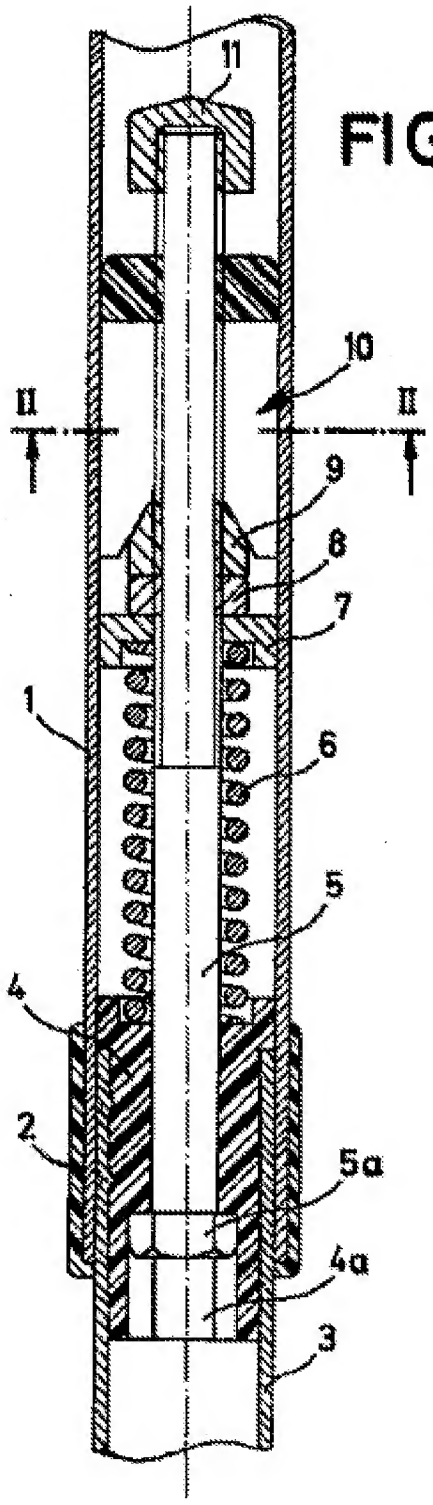

FIG. 1

FIG. 2